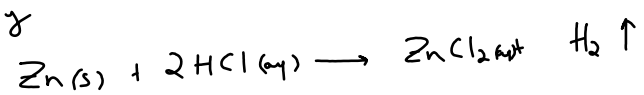


Solution Stoichiometry

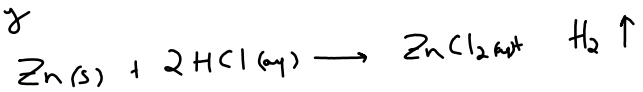
Solution Stoichiometry



If 5.24L of 0.1M HCl

React, what mass of
 ZnCl_2 will be produced?

Solution Stoichiometry

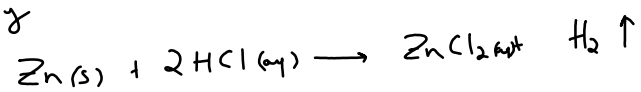


If 5.24L of 0.1M HCl

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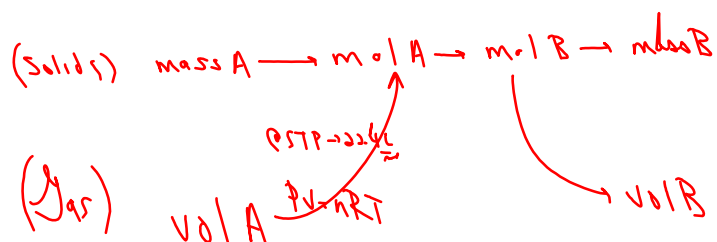
(Solids) mass A \rightarrow mol A \rightarrow mol B \rightarrow mass B

Solution Stoichiometry

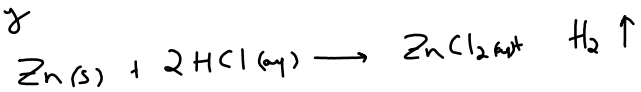


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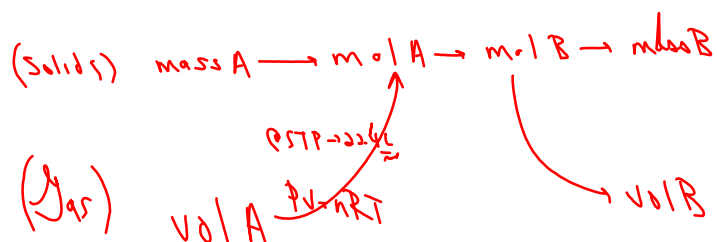


Solution Stoichiometry

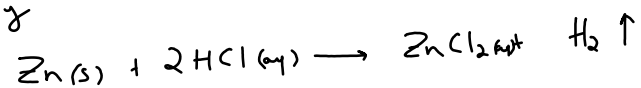


If 5.24L of 0.1M HCl (solns)

React, what mass of
ZnCl₂ will be produced?



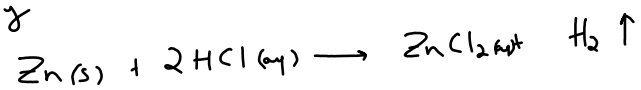
Solution Stoichiometry



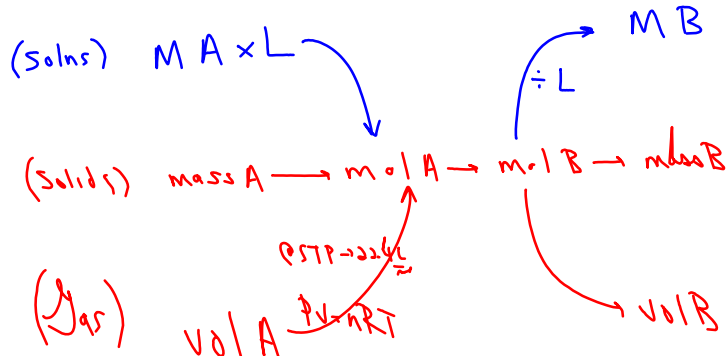
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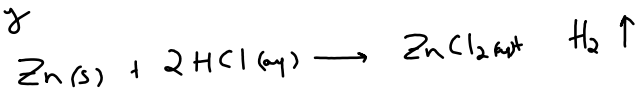
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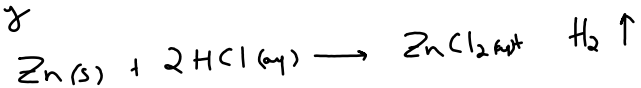


If 5.24L of 0.1M HCl (solns) $M \times A \times L$

React, what mass of
 ZnCl_2 will be produced?

$\text{mol A} \rightarrow \text{mol B} \rightarrow \text{mass B}$

Solution Stoichiometry



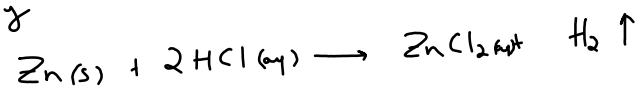
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$$0.1\text{M HCl} \times 5.24\text{L}$$

Solution Stoichiometry



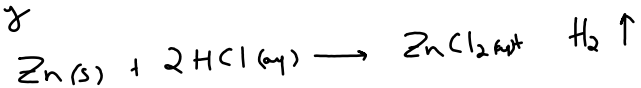
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React, what mass of
ZnCl₂ will be produced?

$\text{mol A} \rightarrow \text{mol B} \rightarrow \text{mass B}$

$$0.1\text{M HCl} \times 5.24\text{L} = 0.524\text{mol HCl}$$

Solution Stoichiometry



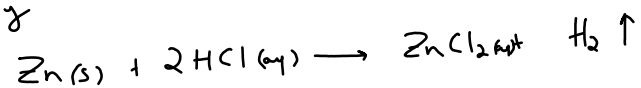
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$$0.1\text{M HCl} \times 5.24\text{L} = 0.524\text{mol HCl} \times \frac{1\text{mol ZnCl}_2}{2\text{mol HCl}}$$

Solution Stoichiometry



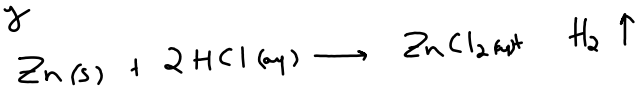
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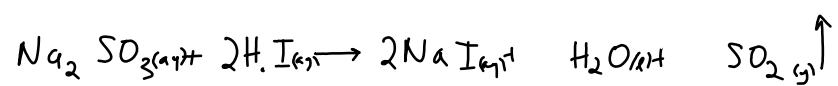
$\text{mol A} \rightarrow \text{mol B} \rightarrow \text{mass B}$

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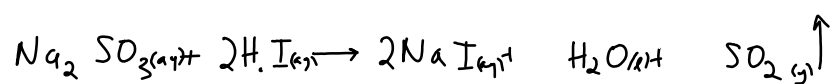
Solution Stoichiometry

If 5.24 L of 0.1 M HCl (solns) $M \times A \times L$ React, what mass of
ZnCl₂ will be produced? $\text{mol A} \rightarrow \text{mol B} \rightarrow \text{mass B}$

$$0.1 \text{ M HCl} \times 5.24 \text{ L} = 0.524 \text{ mol HCl} \times \frac{1 \text{ mol ZnCl}_2}{2 \text{ mol HCl}} \times \frac{136.4 \text{ g ZnCl}_2}{1 \text{ mol ZnCl}_2} = 35.7 \text{ g ZnCl}_2$$

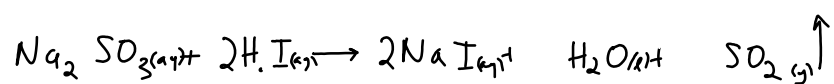


If 2.0 L of 2.1 M Na_2SO_3
 React what mass of NaI is
 produced? what volume
 of SO_2 gas is produced @ STP?



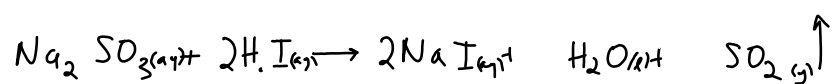
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$$2.0\text{ L} \times 2.1\text{ M Na}_2\text{SO}_3 = 4.2\text{ mol Na}_2\text{SO}_3$$



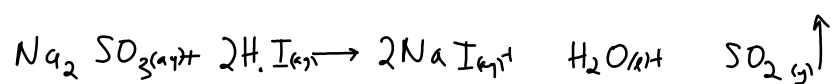
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$$2.0 \text{ L} \times 2.1 \text{ M Na}_2\text{SO}_3 = 4.2 \text{ mol Na}_2\text{SO}_3 \times \frac{2 \text{ mol NaI}}{1 \text{ mol Na}_2\text{SO}_3}$$



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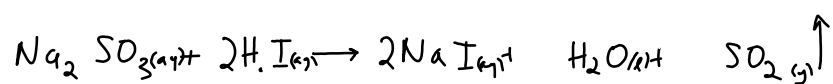
$$2.0 \text{ L} \times 2.1 \text{ M Na}_2\text{SO}_3 = 4.2 \text{ mol Na}_2\text{SO}_3 \times \frac{2 \text{ mol NaI}}{1 \text{ mol Na}_2\text{SO}_3} \times \frac{150 \text{ g NaI}}{1 \text{ mol NaI}} = 1260 \text{ g NaI}$$



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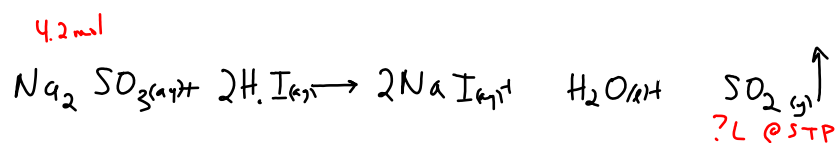


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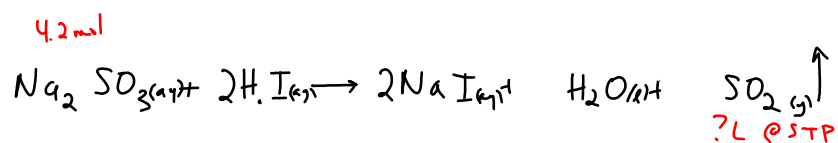
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$$4.2 \text{ mol Na}_2\text{SO}_3 \times \frac{1 \text{ mol SO}_2}{1 \text{ mol Na}_2\text{SO}_3}$$



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$$2.0 \text{ L} \times 2.1 \text{ M Na}_2\text{SO}_3 = 4.2 \text{ mol Na}_2\text{SO}_3 \times \frac{2 \text{ mol NaI}}{1 \text{ mol Na}_2\text{SO}_3} \times \frac{150 \text{ g NaI}}{1 \text{ mol NaI}}$$

$$= 1260 \text{ g NaI}$$

$$4.2 \text{ mol Na}_2\text{SO}_3 \times \frac{1 \text{ mol SO}_2}{1 \text{ mol Na}_2\text{SO}_3} \times \frac{22.4 \text{ L SO}_2}{1 \text{ mol SO}_2} = \boxed{94.1 \text{ L SO}_2}$$

Vapor Pressure - Pressure of the vapor of gas
when a small amount liquid evaporates

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volatile -

nonvolatile -

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↳ evaporates readily (alcohol, gasoline)

nonvolatile - low vapor pressure
↳ evaporates slowly (oils, Hg)

Vapor P dictates Boiling Pt

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Boiling Pt - Temp @ which a liquid
Boils

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↳ Temp for when a liquid's Vapor
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Normal BP - T @ which VP for a liq is standard

Phase Diagrams

Phase Diagrams - graph that indicates the T + P
where each phase will exist.

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Sublimation - solid turning into a gas

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sublimation - solid turning into a gas

Deposition - gas " " " solid

Phase Diagrams - graph that indicates the T + P
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Critical Temp -

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Critical Temp - T in which a substance will always
be a gas, NO MATTER THE P !

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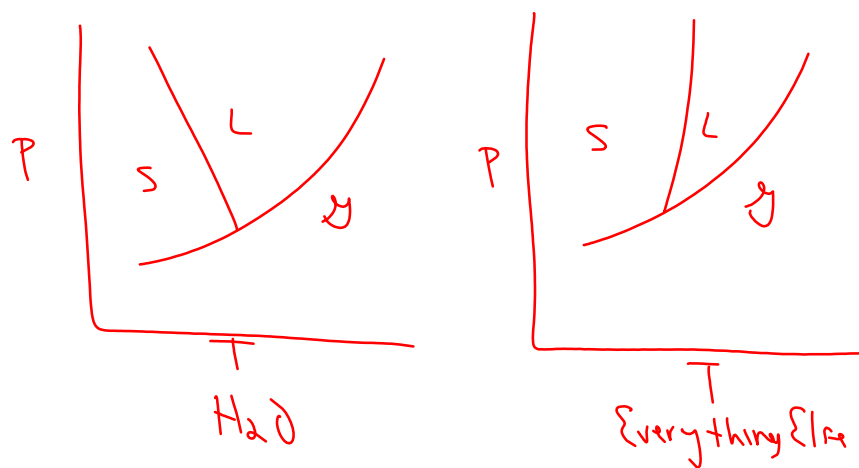
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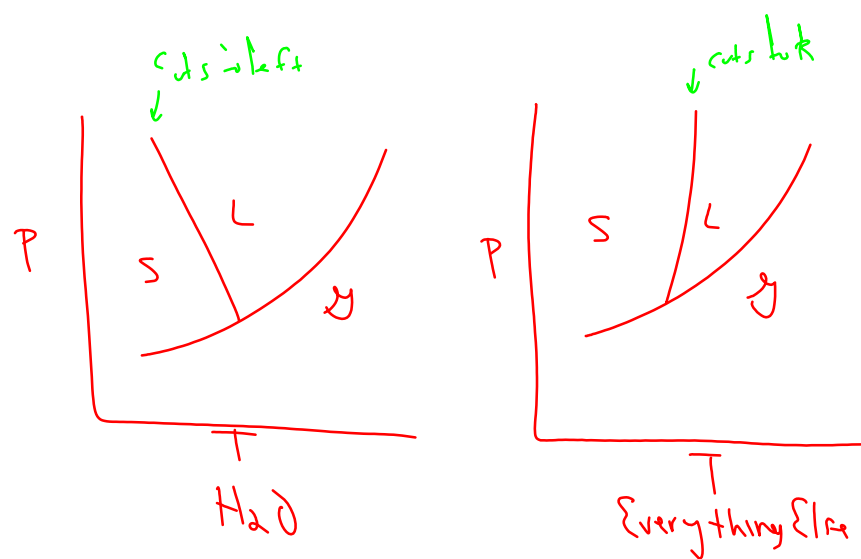
Triple Point -

Phase Diagrams - graph that indicates the $T + P$ where each phase will exist.

Critical Temp - T in which a substance will always be a gas, NO MATTER THE P !

Triple Point - $T \ \& \ P$ where all 3 phases of a substance coexist.





Colligative Props

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Boiling + Freezing points

Vapor Pressure .

Vapor Pressure . If solute conc \uparrow , VP \downarrow

Vapor Pressure . If solute conc \uparrow , VP \downarrow b/c
solute blocks the solvent from
evaporating so less vapor will
exist.

Boiling P_e - Absolute conc \uparrow , BP \uparrow

Boiling P_e - Absolute conc \uparrow , BP \uparrow
B/c VP \downarrow so more E is
needed for the lower VP to
Reach atm P

Freezing Pt

Freezing Pt -